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Monumental Modified Speleothem Sculpture: New Patterns in a Class of Ancient Maya Cave Art

Cameron S. Griffith and Sarah M. P. Jack

Abstract

Scholars studying ancient Maya cave sites have divided cave art into two basic types: painting and carving. The majority of Maya cave carvings identified to date are small petroglyphs, many in the form of crude faces gouged on speleothems. Recent investigations by the authors have revealed speleothem modification far beyond the scope of typical petroglyphs. This paper presents several newly discovered monumental speleothem sculptures, as well as preliminary interpretations for these works of art.

> With the extended knowledge of Central American rock art, it might be seen that a great number of different styles exist which could reflect similar artistic differences such as pottery styles…it should go without saying that the rock engravings and paintings always reflect a specific culture and can only be distinguished from other cultural manifestations by the special medium which they utilize (Strecker 1979:9-10).

The cave art of the ancient Maya has been a topic of increasing interest by scholars. It is widely understood that caves were the loci of considerable ritual activity, central in the ancient Maya worldview as abodes of the gods and portals to the Underworld (Bonor 1989; Brady 1989; Pendergast 1964; Thompson 1959). Known as Xibalbá, or "the place of fright," the subterranean world was fundamental to the mythology, story of creation, and beliefs in the afterlife of the ancient Maya (Awe 1994; Bassie-Sweet 1991; Bonor 1992; Stone 1985). Within the Cimmerian recesses of the Earth, ancient Maya priests and kings conducted their holy rituals which included the burning of incense (Awe 1998; Brady and Prufer 1999; Brady and Rodas 1995; MacLeod and Puleston 1978), autosacrificial bloodletting (Bonor 1995; Griffith 1999; McNatt 1986), human sacrifice (Gibbs 1998; McAnany 1998; Scott 1992), and the carving of formations (Navarrete and Martinez 1977; Siffre 1979a, 1979b; Stone 1995; Strecker 1981; Rissolo 2001).

This paper employs the term *Modified Speleothem Sculpture* (MSS) as a class of ancient Maya art that includes artwork rendered in cave formations and presents newly discovered, complex, and monumental examples of this class (cf. Jack and Griffith 2002). The MSS class does not include all carved artwork[1] as this effort is a preliminary study and not an attempt to establish the full typology of Maya cave carving. The main issues here are the identification of human modifications of

Cameron S. Griffith
is in the Ph.D. program in anthropology at Indiana University, Bloomington. He is also the Co-Director of the Western Belize Regional Cave Project, directed by Dr. Jaime J. Awe.

Sarah M. P. Jack
is currently studying for a BA (Hons) Archaeology & Anthropology at Hertford College, Oxford University. She has also excavated at Pompeii, Italy and Frilford, England.

Making Marks: Graduate Studies in Rock Art Research at the New Millennium
Jennifer K.K. Huang and Elisabeth V. Culley, Editors. American Rock Art Research Association, 2005, pp. 1-16.

speleothem material, and how their systematic analysis has revealed monumental cave sculptures in Belize.

Background

Although Teobert Maler conducted some of the first archaeological investigations of Maya engravings in caves (in "La Cueva de la Cabeza," Maler 1901:202), the work of Matthias Strecker is recognized as the groundbreaking study of cave sculpture in the Maya area (Brady 1999; Brady et al. 2003). Since Maler's time, scholars have proffered a variety of terms for the cave sculpture of the ancient Maya, including etchings, carvings, engravings, sculptures, and petroglyphs. We introduce the term *Modified Speleothem Sculpture* here, although there is a history of use of all three elements comprising this designation. Michel Siffre (1979a) uses the term *sculptures* to describe a wide range of carved art in Gruta de Jobonche. James Brady, Allan Cobb, and Christian Christiansen have documented similar elaborate artwork as *speleothem sculpture* (Brady 1999; Brady and Cobb 1998; Christensen and Brady 2000). Brady and his colleagues (Brady et al. 1997), as well as Andrea Stone (2001), have also presented the term *modified speleothem*. Thus, the origins of the term Modifed Speleothem Sculpture should be attributed to the combined work of these and other scholars.

Cave sculptures have been identified in sites throughout the Maya area since the earliest archaeological explorations in Maya caves (Gordon 1898; Maler 1901; Mercer 1975; Seler 1901; Thompson 1897). In a recent review of the literature, Brady (1999) reports that cave engravings range across the Peten region of Guatemala, the Copan periphery in Honduras, the Cayo and Toledo districts of Belize, and in Chiapas and Yucatan Peninsula of Mexico. Although modified speleothem art has not been the subject of as extensive a study and evaluation as cave painting, it is, nevertheless, possible to suppose that over 50 caves with carving can be found in the Maya area (Stone 1997: 34, 39).

Terminology

Speleology, or the scientific study of caves, has an extensive literature as well as terminology specific to the discipline (Hill 1976). A *stalagmite* is a "deposit of calcium carbonate formed by the dripping of water into the shape of a large inverted icicle rising from the floor of a cave etc.;" a *stalactite* again referring to "a deposit of calcium carbonate having the shape of a large icicle…," this time formed by "…the trickling of water from the roof of a cave, cliff overhang etc.;" while *flowstone* is used to denote "…a rock formation, deposited by water flowing in a thin sheet" (ibid.). The term *speleothem*, according to the Oxford English Dictionary, 2nd edition, was introduced to "relieve the ambiguities of [the term] 'formation'" referring to "any structure which is formed in a cave by the deposition of minerals from water." Thus, the term speleothem encompasses the primary cave formations: stalagmites, stalactites, and flowstone.

Rock art studies similarly have a particular argot. While the term *petroglyph* is defined as "a rock carving (usually prehistoric)" (ibid.), most rock art scholars consider petroglyphs to be designs pecked, chiseled, carved, abraded, scratched, engraved, or incised in low relief (Davidson 1936:6-9; Dubelaar 1995:3; Flood 1997:38; Kühn 1956:7; Lee 1992:26; Schaafsma 1980:28-31). Such rock art has been identified in caves and surface contexts around the world. The vast majority of this prehistoric art does not include more elaborate work such as bas-relief or large sculptures, although notable exceptions include the "Venus" with horn from Laussel, France, the sculpted horse head of Comarque, France (Bahn and Vertut 1997:111-112), and bas-relief images in Hawaii (Lee 1989).

Ancient Maya cave sculpture is predominantly represented by small, basic faces with features incised, carved, or gouged into the soft rock of cave formations (see Brady 1999:59 for the terms traditionally employed in Maya studies)[2]. As the majority of speleothem material is a soft and malleable sculptural medium, modified features could easily be achieved with gentle twists of a sharp lithic blade rather than "pecking" with a hammerstone and chisel. The features typically represented are eyes, a mouth, and occasionally a nose, and are thus traditionally referred to as *simple faces* or *crude faces* (Brady 1999; Helmke and Awe 1998; Griffith and Morehart 2001; Rissolo 2001; Stone 1997). Other types of carved images do occur, albeit less frequently, and

these include stacked lines or "ladder" symbols, glyphs or glyph-like symbols, and triangular, curvilinear, and other geometric designs (Bonor 1989; Strecker 1979). In most instances, the simple faces and other designs are relatively superficial, shallow petroglyphs which, when evaluated in the low-light situations inherent in cave research, make them somewhat difficult to detect.

Although simple faces and small petroglyphic designs are predominant in the current literature on Maya cave sculpture, some scholars have recorded more complex forms. One prevalent aspect of Maya cave carving is the appearance of petroglyphs of simple faces on shaft-shaped stalagmitic formations[3]. In many cases, this results in the appearance of a statuesque figure with carved facial features within a bulbous, naturally formed cranial "protuberance" (cf. Conkey's "iconic congruence," 1981:26-27; and see Brady 1999 and Stone 2001 for elaboration on this style).

Another type, yet far more infrequent in the literature, is bas-relief carving, or sculpture in the round. Early scholars report finding large stalagmitic conglomerations in caves that appear to be either seated figures (Stirling 1947:139) or crouching zoomorphs (Anderson 1962:331; Pendergast 1970:8). However, as these researchers were not focused on the identification of rock art or evidence for the human creation thereof, it is still unclear whether or not the ancient Maya modified these formations. Other scholars experienced in the identification of Maya cave art have documented clearly modified examples, including bas-relief speleothem "sculptures" of animal heads, human faces in portrait and profile (Brady and Cobb 1998:5; Siffre 1979a:82), a speleothem "idol" of a human figure with detailed facial features and crossed arms (Navarrete and Martinez 1977:39), a three-dimensional sculpted stalagmite of a seated figure replete with carved face (Brady and Cobb 1998:4), and a stalagmite fashioned into a jaguar face with a snout, mouth, ears, one eye and possible earflares (Brady et al. 2001:12; Christensen and Brady 2000:1).

Due to this range of complexity within the ancient Maya tradition of cave sculpture, the literature has been subject to classificatory disparities by scholars, with the terms *petroglyph*,

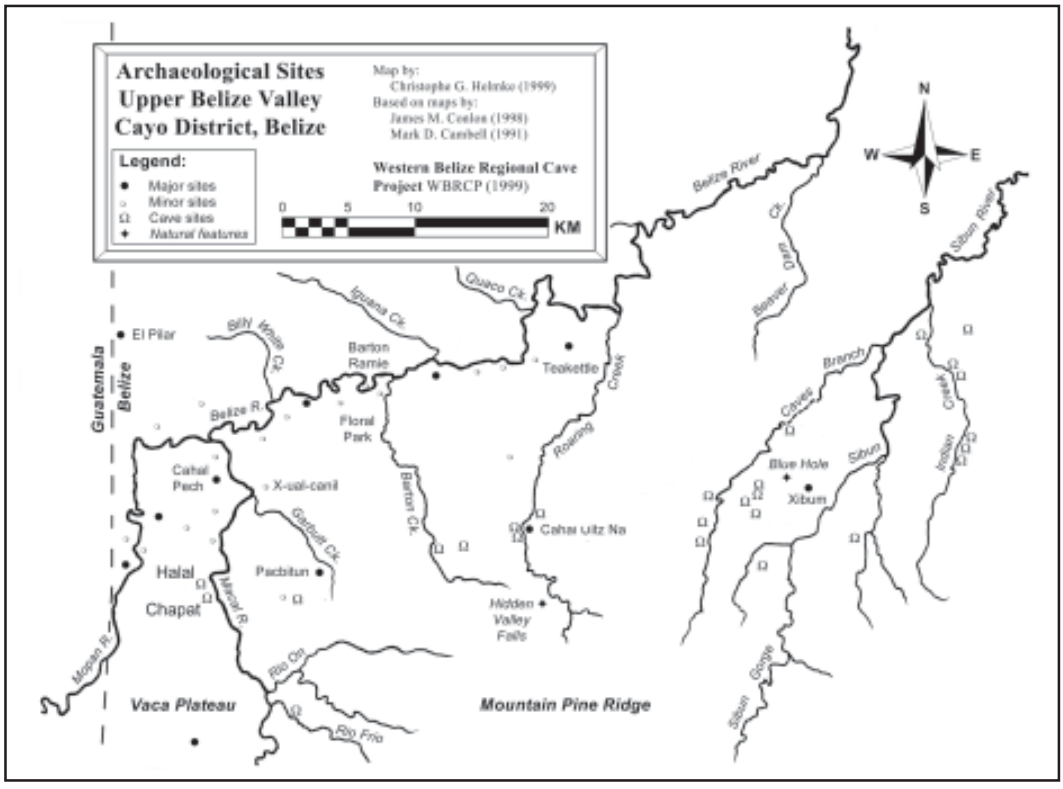

Figure 1. *Locations of Actun Halal and Actun Chapat in western Belize.*

engraving, *carving*, and *sculpture* all being used to describe the same art forms. This problem arises as modified speleothem sculptures in some Maya cave sites show a gradation from small petroglyphs to more elaborate artworks. To address this problem some scholars have chosen to intermix different terms for the art or explain why the term petroglyph was reluctantly used to categorize all forms (Brady 1999; Griffith and Morehart 2001).

The history of research clearly demonstrates that basic terms such as petroglyph do not adequately address the diversity of art forms in Maya speleothem art. The term Modified Speleothem Sculpture (MSS) is comprised of three critical descriptors that address artworks of this type: *modified*, to emphasize that human modifications have been identified; *speleothem*, to encompass the wide range of water-borne mineral deposits in which the modifications were executed; and *sculpture*, to denote the three-dimensionality evident in the final product[4].

Despite the shallow and faint nature of the modifications, small pecked petroglyphs, carvings, and etchings in cave rock *are* sculpture and should be classified as Modified Speleothem Sculpture. Certain cave sculptures can be considered monumental Modified Speleothem Sculpture in the same way that distinctions are made between small figurines and large masks adorning the walls of a civic center.

Methods

In this study, speleothems were investigated from two cave sites in Belize: Actun Halal and Actun Chapat, both of which contain ceramic and other evidence of ancient Maya activity (Figure 1). Cave formations were systematically examined for evidence of breakage, carving, and other modification. The areas of modification were documented and, where applicable, certain sculptures such as simple petroglyphic faces were identified. During the documentation and in the examples to follow, directional cues of specific features or petroglyphs, such as "left" and "right" or "medial" and "lateral," refer to the perspective of the viewer when facing the art form.

Evidence for human modification was documented when alterations to the speleothem material could not be easily accounted for by natural formation process of the mineral deposits. As post-formation breakage occurs as a result of natural processes (e.g. falling rock, insect disturbance, and spalling), any inferences or suppositions regarding human agency involved in the modifications were based upon the overall pattern of modification. A problem that arises in the study of cave art is that solution caves typically continue to be active after ancient cultural utilization has ceased.

While it may be possible now or in the future to determine areas of modification covered by subsequent mineral deposition, techniques of this nature were not employed at the time of this study. It is also known that various groups in the Maya area continued to utilize and modify caves following the decline of ancient Maya civilization. Future testing of the mineral layers in Modified Spelothem Sculptures should provide information regarding the age of modification episodes.

A series of measurements were recorded for the petroglyphs and various speleothem modifications located within the cave sites. The measurements taken, where applicable, included height above surface, dimensions of bulb or formation, dimensions of carved area, dimensions of eyes, dimensions of mouth, distance between eyes, etc. This system was developed based on a study of the simple carved faces; more elaborate sculptures have additional measurements, and in many cases some of the standard categories were not applicable. All data for each artwork are not presented here for the sake of brevity, and are available in the field reports (Griffith and Morehart 2001; Griffith et al. 2002).

Visual documentation of the cave art was attempted by using multiple cameras on repeated occasions with different light sources such as torchlight, candlelight, infra-red, and a variety of battery-powered lights. Each sculpture was photographed as an overall image (seen in Figures 2,7,8,11 and 13) and close-up photographs of modified sections within a single MSS were taken (as in Figures 6 and 15). Illustrations were also produced depicting the overall image, with stippling and outlines serving to visually accentuate modifications and contours, which often wash out in photographs of predominantly dull grey limestone formations (Figures 3, 4, 9, 12 and 14).

Figure 2. *MSS 1, Actun Halal: photo with torchlight.*

Examples of Monumental Modified Speleothem Sculpture

During the course of research in Actun Chapat and Actun Halal, 15 examples of monumental Modified Speleothem Sculpture were identified. However, as the research into MSS was limited to two cave sites, these numbers do not give any indication of the prevalence of such sculptures in other caves utilized by the ancient Maya. The five examples used in this chapter were chosen because they represent some of the main variants identified and illustrate the range in size and complexity of these works of art.

Monumental Modified Speleothem Sculpture 1, Actun Halal

Modified Speleothem Sculpture 1 in Actun Halal is comprised of two irregular, ovoid depressions or "eyes" and a crude "mouth" or maw that were hollowed out of rippled bacon and bell formations within a vertical cascade of flowstone adhering to a cave wall (Figure 2). The "mouth" or maw of MSS 1 in Actun Halal is grotesque and asymmetrical, and gives the appearance that MSS 1 is a snarling, lithoidal monster materializing out of the cave wall.

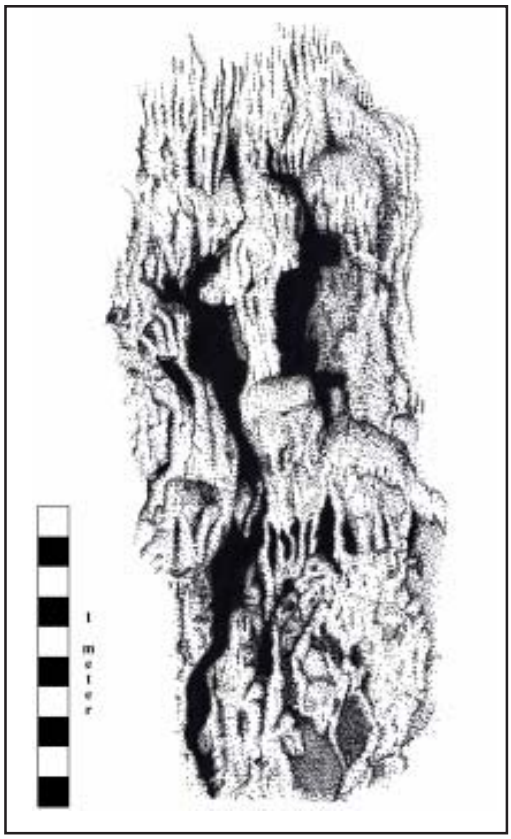

Figure 3. *MSS 1, Actun Halal: illustration.*

The interior borders of the eye depressions exhibit clipping and cleaving, and the limestone karst in the depths of the orifices is partially visible along with remnants of fractured speleothem formations adhering to the wall. The central column between the eyes has been slightly modified on the medial aspect of the right eye, whereas the left side appears to have been untouched. The superior aspects of the interiors of both orbits exhibit breakage or clipping, while the inferior aspects exhibit smooth flowstone that appears to be unmodified, yet recent flowstone accumulation is present in these areas.

Measuring nearly half a meter high and 15 centimeters deep, the hollowed eyes are significantly larger and deeper than the eyes of the simple faces traditionally identified in Maya caves. Although the mouth is somewhat amorphous and asymmetrical, MSS 1 measures 1.5 meters in height if the extent of modification on the left side of the mouth is included (Figure 3).

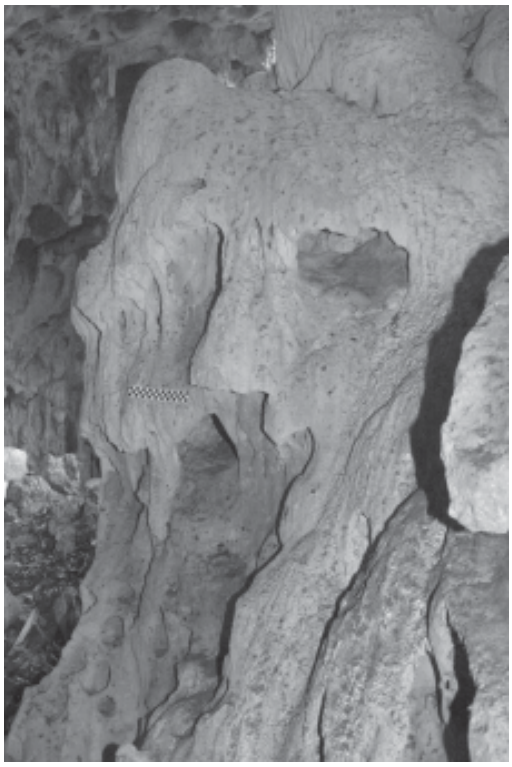

Figure 4. *MSS 7, Actun Halal: photo with flash.*

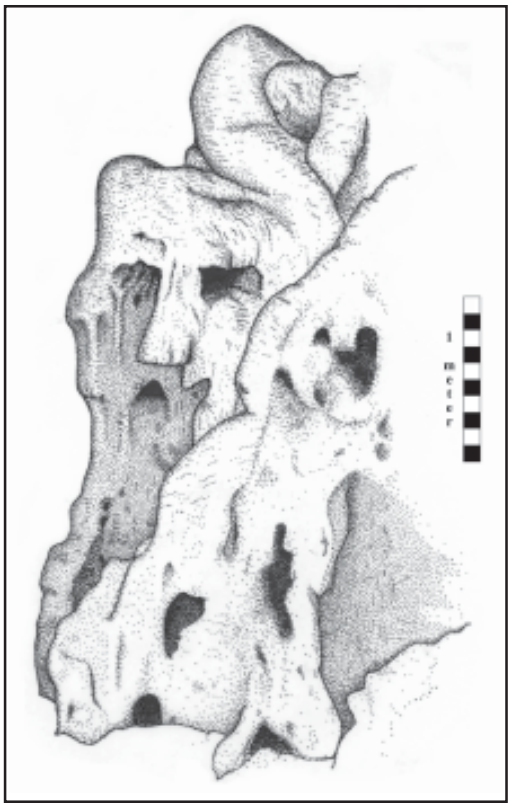

Figure 5. *MSS 7, Actun Halal: illustration.*

Monumental Modified Speleothem Sculpture 7, Actun Halal

The pattern of modification in Modified Speleothem Sculpture 7 in Actun Halal (Figure 4) appears to be an elaboration on the pattern seen in MSS 1 in Halal. The area of modification is located on a large stalagmitic formation that contains multiple bulbs. There is a hollow "eye" feature that demonstrates evidence of clipping and shaving to the bell formations within the body of the stalagmite resulting in negative space within the body of the formation. The superior aspect of this orbit is somewhat uneven due to calcareous deposits subsequent to the modification episode that have covered portions of the carving in this area. The medial and lateral aspects of the orbit have been abraded and are nearly vertical. Within the orbit, gouge marks on the speleothem material are evident.

To the left of this eye there is another hollow space within the speleothem that has similar gouging within, as well as clipping resulting in a linear feature. However, the shaving that defines

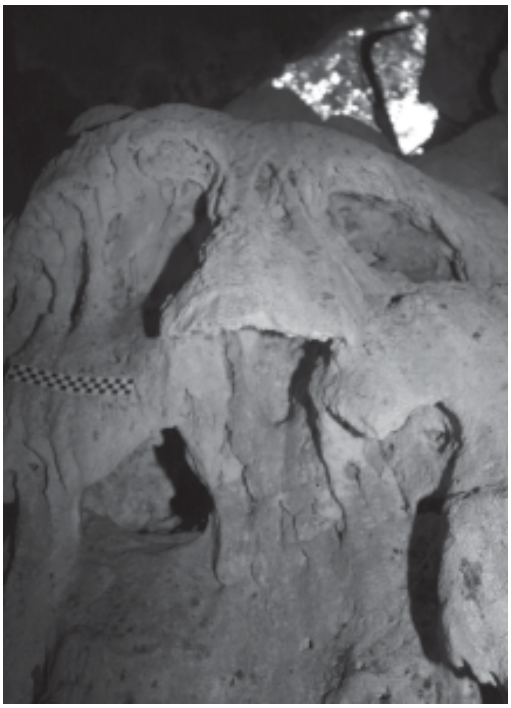

Figure 6. *MSS 7, Actun Halal: close-up photo showing speleothem modification.*

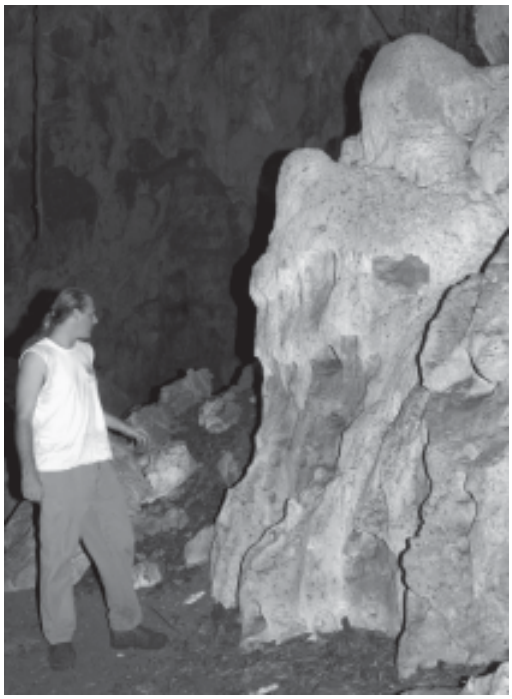

Figure 7. *MSS 7, Actun Halal: scale emphasized.*

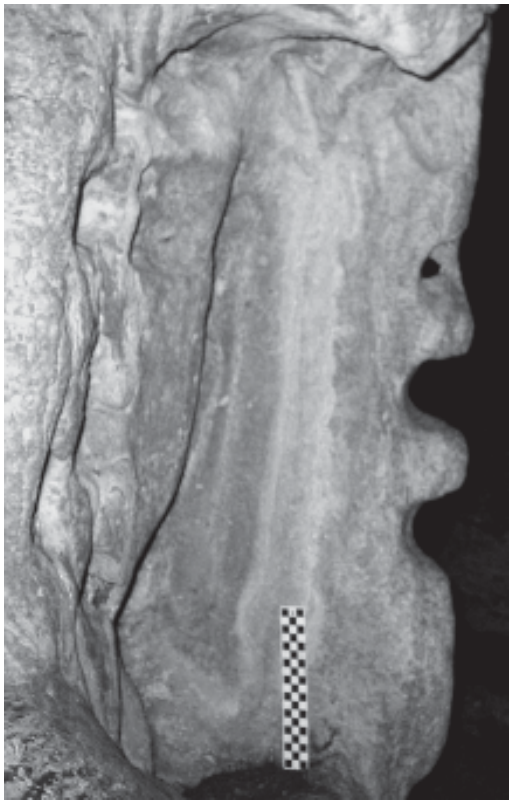

Figure 8. *MSS 4, Actun Chapat: photo with flash, east view.*

this linear feature extends laterally and downward, and curves around to the underside of another bell formation. This line defines the bridge and tip of a "nose" in profile, pointing to the viewer's left. The line of modification continues below and to the right of the underside of the nose to define a drooping upper lip, an upturned mouth and prominent chin, all in profile (Figure 6). The overall effect is that of a screaming frontal face or a smiling toothless old man in profile, measuring nearly one meter high (Figure 5).

The speleothem bulbs on the top of the cranium of MSS 7 provide an overall headdress effect (Figures 5 and 7). As they are on the very top of the stalagmitic conglomeration, these bulbs have been subject to significant dripwater activity which makes it difficult to ascertain whether these areas were modified in antiquity. This situation is problematic as it arises frequently, and testing of the speleothem material is necessary in order to resolve the question.

Monumental Modified Speleothem Sculpture 4, Actun Chapat

The overall scheme of Modified Speleothem Sculpture 4 in Actun Chapat is that of a face in profile (Figures 8 and 9). However, the modified undulations in the flowstone provide an

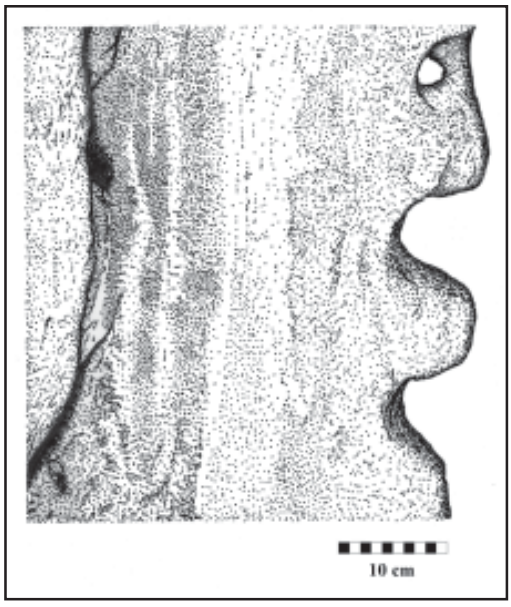

Figure 9. *MSS 4, Actun Chapat: illustration.*

interesting effect where it becomes difficult to identify exactly which facial features the sculptor intended to emphasize. The area of modification appears on the lower portion of a tall stalagmitic conglomeration. There are undulations or curves that comprise an eye orbit, nose, mouth, lower lip, chin, and neck, and all these have been abraded, shaved, or smoothed. There is a hollow "eye" feature that has been biconically drilled. This eye, in conjunction with the rest of the modifications to the speleothem, make both sides of this MSS look similar when viewed from the opposite vantage point (Figure 10).

Monumental Modified Speleothem Sculpture 6, Actun Halal

Modified Speleothem Sculpture 6 in Actun Halal is a complex sculptural form that combines traditional petroglyphic carving with other modifications that yield three-dimensionality within a flowstone formation (Figure 11). It appears that there may be multiple carvings[5] comprising different images in MSS 6. There are shallow vertical lines and ovoid shapes pecked into the vertical aspect of the formation, although the erosion and spalling present make it difficult to

Figure 10. *MSS 4, Actun Chapat: photo with flash, west view.*

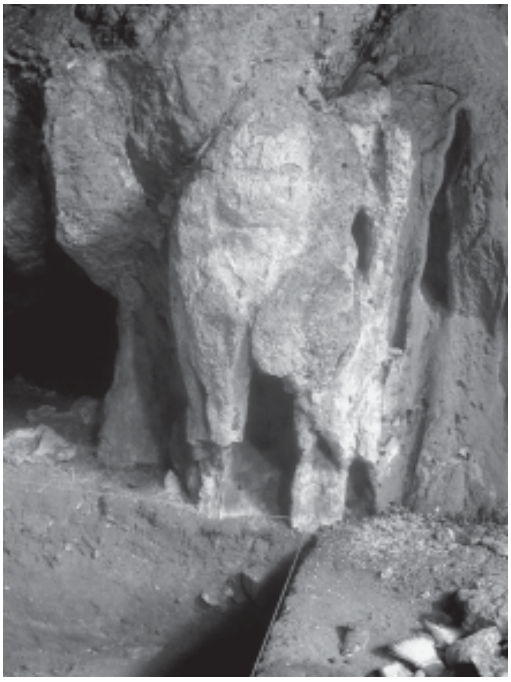

Figure 11. *MSS 6, Actun Halal: photo with flash.*

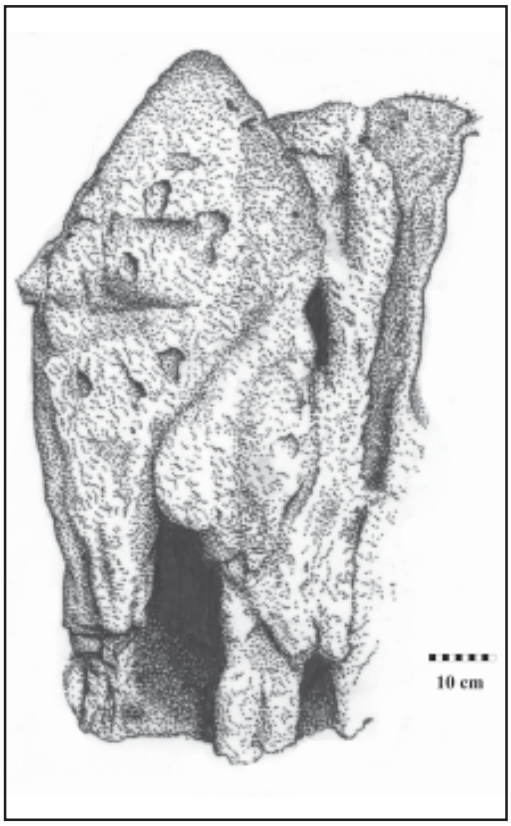

Figure 12. *MSS 6, Actun Halal: illustration.*

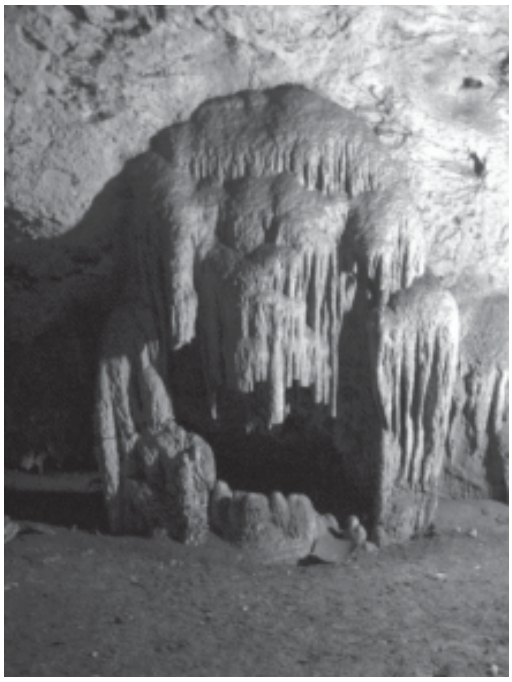

Figure 13. *MSS 1, Actun Chapat: photo with torchlight.*

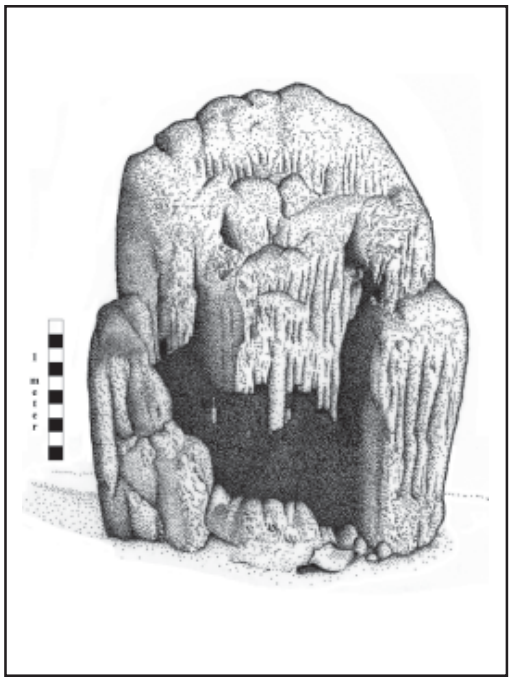

Figure 14. *MSS 1, Actun Chapat: illustration.*

ascertain the nature and extent of the modifications (Figure 12). However, it does appear that the formation has a simple face comprised of two eyes. Below these eyes there is a stalactite that has been shaved and clipped, giving the overall appearance of a "snout" or trunk-like feature. The distal end of the snout exhibits a linear break which indicates that the formation was snapped or clipped. Both the right and left sides of the snout demonstrate shaving that result in a tapering in of the snout in the approximate center. Similar shaving or gouging is present on the anterior aspect of the snout in two places, which gives it the appearance of a slight undulation. Below and to the left of the snout there are linear cleavage planes that clearly indicate that speleothem material was removed from the formation in this area. The overall effect resulting from this speleothem removal is that the snout stands out more prominently from the rest of the formation.

Monumental Modified Speleothem Sculpture 1, Actun Chapat

Modified Speleothem Sculpture 1 in Actun Chapat is comprised of a series of modifications to a conglomeration of flowstone 3 m in height (Figures 13 and 14). The majority of the modification is clipping, which is evident on thin stalagmitic columns within the conglomeration. A series of individually clipped, thin columns form a group centrally located in the flowstone conglomeration, with one longer column in the middle (Figure 15). This feature of clipped columns appears to be either a "snout" or a nose, while the smaller formations to the left and right of it appear to be fangs or teeth. On either side of the one central and longer column, there is evidence of clipping and shaving to other formations that effectively set the snout and fangs apart from the rest of the formation. Below the snout are stalagmitic bulbs that have been shaved or flattened. Within the formation behind the snout, the speloethem material on the underside of the formation appears deadened from burning episodes.

Inside the formation on the ground there is a small pile of broken speleothems, each ranging from 10 cm to 30 cm in length, as well as three undiagnostic ceramic sherds ranging from 5 cm to 30 cm in length. On the ground in front of the formation there is a large unslipped body sherd of a ceramic vessel (olla). Olla vessels found in Maya caves have largely been accounted for as containers to collect zuhuy ha, or sacred water

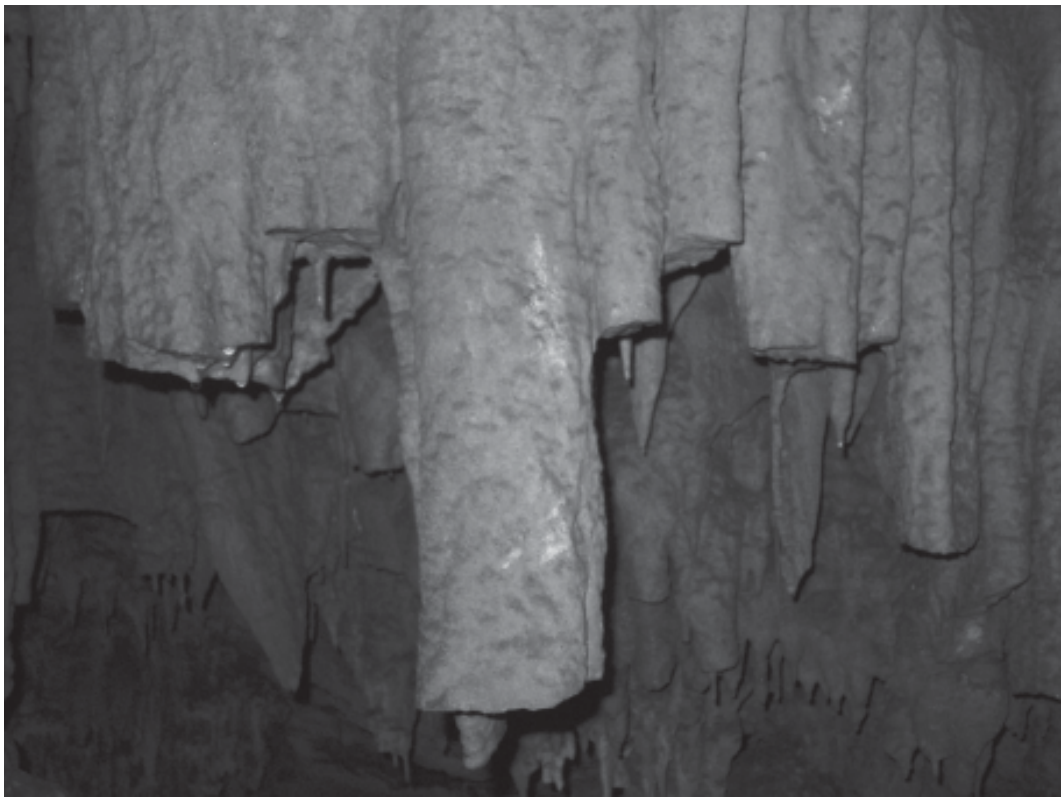

Figure 15. *MSS 1, Actun Chapat: close-up photo showing speleothem modification.*

(Thompson 1975). As such, it is possible to suppose that caves with such vessels were also potential sites of ritual activity. The large number of speleothem fragments cached in the mouth of the sculpture is of particular significance, and associated artifacts would suppose some considerable worth attached to this particular sculpture (cf. Pendergast 1970).

Discussion

The thrust of this research has been focused upon identifying modifications to speleothems similar to those identified by other researchers in the past. The areas identified as modified are not accounted for by natural processes; rather, they were alterations that were not only the result of human activity but also strategically placed by ancient sculptors[6]. Variations of this phenomenon have been well documented in numerous research endeavors in Maya caves over the past 100 years. This research endeavor in Belize has revealed works of sculpture that are more elaborate and at a larger scale than the relatively simple petroglyphs and "stalagmite idols" (Brady 1999; Stone 2001) prevalent in Maya cave sites. While the large scale and degree of elaboration of the rock art presented here is unlike most of the other speleothem art previously recorded, these Modified Speleothem Sculptures are similar to the few large modified speleothems identified by other scholars. However, the examples shown here are *monumental* works of sculpture on speleothems, which have either incorporated the natural shape and three-dimensional qualities of the cave rock, or exhibit deep extensive modification that results in an ominous sculptural effect.

The obvious next step in the evaluation of these monumental Modified Speleothem Sculptures is to identify what each artwork represents. While it is tempting to compare these works to historical portraiture and deities seen on temples and stelae monuments at surface sites, this type of analysis would be more fruitful with the expertise of scholars of Maya iconography. Although there may very well be correspondences

between monumental MSS and the elite art of the Classic Maya, the discussion here will be limited to a few general comparisons to established underworld themes.

The crude and prominent eyes and mouth of MSS 1 in Actun Halal can be regarded as particularly fitting in any underworld scene. Indeed, simple or crude faces have long been viewed as part of the *Xibalbá* setting, in direct contrast to the exquisite qualities of carved stelae monuments at surface sites (Brady 1999). Based on the ancient Maya emphasis on the contrast between the worlds of the living and the dead, a grotesque representation of a face with large eyes and a gaping maw seems apt. While it is possible that this sculpture was designed to represent a deity with large "goggle" eyes and a gaping mouth, it is important to note that for the ancient Maya, the underworld was filled with countless skeletal denizens (Figure 16). It is equally likely that MSS 1 in Halal was fashioned to depict one of the many hideous and deformed *Xibalbáns* known to reside in caves.

Both MSS 7 in Actun Halal and MSS 4 in Actun Chapat appear to be sculpted faces in profile. In a review of underworld iconography, Mayanists Schele and Miller (1986:53) indicate, "a set of toothless old gods, characterized by sunken lips and wrinkled faces, seems to have presided over Xibalbá." The smoothness of the

Figure 16. *Maya underworld denizens represented on a polychrome vase. © Justin Kerr, rollout photo number K1152, courtesy of Justin Kerr.*

Figure 17. *Maya Way characters, or "spiritual co-essences" represented on a polychrome vase. © Justin Kerr, rollout photo number K4960, courtesy of Justin Kerr.*

interior of the mouths of both of these sculptures gives the impression of a toothless character. Thus, it is possible that they are representations of aged and wizened underworld deities.

Although different, both MSS 6 in Actun Halal and MSS 1 in Actun Chapat exhibit large, trunk-like noses that are set apart from the rest of the sculptural medium. One interpretation for such sculpture would be as a representation of a way, or spiritual co-essence. The way character, known from ancient Maya iconography and hieroglyphic inscriptions, was associated with death, the afterlife, and ancestors (Houston and Stuart 1989; Stone 2001). Often with a human body, these anthropomorphic figures are at times represented with snouted-animal heads (Figure 17). It would be of little surprise if the ancient Maya, for purposes of ritual atmosphere, or as part of the ritual process itself, inundated their "underworld" caves with numerous different way figures (cf. Stone 2001).

The artworks presented here are a clear example of how cave sculptures may be of far greater complexity than would appear at first glance. The simple petroglyphic faces heretofore identified in the Maya area have been largely restricted to frontal faces, a fact that is particularly remarkable given the prevalence of the profile perspective in Maya iconography (see Griffith 2002 for a discussion of perception and psychology in relation to the identification of MSS). A surprising number of sculpted faces in caves rendered in profile became apparent during this research, which may mean that this aesthetic is far more extensive in Maya cave sites than was previously assumed. However, there were also grotesque "monsters" with gaping maws rendered in portrait view. The possibility for drawing iconographic parallels in the evaluation of such cave art is obvious, for such future comparison could serve to reveal similarities between monumental Modified Speleothem Sculpture and artwork of the elite Classic Maya tradition from large ceremonial centers on the surface.

This research on monumental Modified Speleothem Sculpture has inspired many important questions: What is the cosmological or mythological significance of these monumental sculptures? Is there any connection between monumental Modified Speleothem Sculpture and the iconographic themes seen in monumental masks on temple façades and friezes? During what time period were the sculptures formed, and are multiple time periods represented? Is it possible that some caves contain sculptures with a blend of Christian and Maya imagery from Post-contact times? Is monumental Modified Speleothem Sculpture a phenomenon present in all caves in the Maya area? These questions provide fertile ground for a wide variety of research endeavors in the future study of ancient Maya cave art.

Conclusion

Through the systematic identification and recording of modified cave formations, monumental Modified Speleothem Sculptures have been identified at two cave sites in Belize. Although the distinction has been made here between monumental works and smaller-scale "petroglyphs," the basic elements of both simple faces and more elaborate sculptures merit their inclusion in a single art class called *Modified Speleothem Sculpture*. Indeed, the sporadic use of the term sculpture in conjunction with the inadequacies of the term petroglyph illustrates the need for a new appellation. The discovery of sculpted art at a monumental scale serves to emphasize this and demand a solution.

This research has shown that there are a great number of different sculptural styles in caves, perhaps representing larger versions of previously documented underworld themes, or possibly mirroring artwork found at large surface sites where there is a range from elaborately sculpted visages of priest-kings on stelae monuments to massive images of gods flanking staircases or adorning roof combs. While we have provided possible explanations as to what the various artworks presented here may represent, it is not our intention to establish the final interpretation for these monumental Modified Speleothem Sculptures. Rather, we hope that these initial interpretations will spark debates similar to those that persist over iconographic scenes depicted on polychrome vessels, stelae monuments, and the pages of codices.

Acknowledgements

The authors would like to extend their sincerest gratitude to Jaime J. Awe, director of the Western Belize

Regional Cave Project, for his direction and support of the investigations in Actun Halal and Actun Chapat. We would like to thank George Thompson, Allan Moore, and the Belize Institute of Archaeology for their support of the Western Belize Regional Cave Project. We thank David and Eleanor Larson for their efforts in photography, experimental lighting techniques, and continued support. Special thanks go out to Chistophe Helmke, Reiko Ishihara, Bruce Minkin, and William Pleytez for their special contributions to the investigations.

We are particularly grateful to everyone else who contributed to the fieldwork and discourse on rock art: Brianne Bolstetter, Jenna Brown, Brian Cavanaugh, Sarah Cummings, Alicia Daigle, Rebecca Deeb, Brian Dema, Jonathan Forbes, Jenny Guerra, Christina Halperin, Joe Hobbs, Angelo Hultquist, Simon Jacyna, Amber Jimerson, Krista Jordan, Ben Kelsey, Harri Kettunen, Dave McCarron, Rosie McLachlan, Shawn Morton, Takashi Ochiai, Linda Palit, Rusty Peterson, Rene Torres, Karla Whittenburg, Amber Yuellig, and Jonathan Zarich. We hope we have not forgotten anyone.

We would like to express our sincere gratitude to Jim Brady, Allan Cobb, Mark Robinson, and Andrea Stone for their comments and suggestions on earlier versions of this paper. We must emphasize that the hypotheses, suppositions, interpretations, and ideas herein, as well as any errors or misconceptions, are solely the responsibility of the authors.

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NOTES

[1]The ancient Maya also carved the limestone cave walls, which does not fall within the MSS class. However, artworks executed in bedrock likely comprise less than 10% of all cave carvings (Jim Brady, personal communication 2002).

[2]For purposes of this paper, different *types* of modification have been described using terms such as "clipping," "shaving" and "gouging." While these are useful, they inevitably result in classification of different modification types based on speculation regarding the *technique* used by the ancient Maya to modify speleothem material (e.g. "drilling").

[3]The incorporation of natural formations into cave artworks is not exclusive to the Maya area; for examples elsewhere see Clottes and Lewis-Williams 1998 for France and Spain and Lee 1992 for Polynesia.

[4]Another issue with regard to Maya cave art is that carving on speleothem formations is technically not on the walls of the cave. In fact, carvings are often evident on freestanding stalagmites within cave entrances and chambers. Thus the term *parietal art* is technically a misnomer for the vast majority of carving present in ancient Maya cave sites. While *pseudoparietal* is apt in cases such as this (see Bahn and Vertut 1997:104), the specificity achieved by the use of this cumbersome word is implicit in *speleothem* within in the term Modified Speleothem Sculpture.

[5]It has not escaped our attention that these could represent non-contemporaneous modification episodes. This is a problem that arises with all rock art and can only be fully resolved with accurate dating techniques.

[6]There are many examples of scholars avoiding terms such as "sculptor," "artist" and "art" when referring to the works of past peoples. The potential for miseleading ethnocentric assumptions, particularly on the assumed intent of past "artists" (e.g. producing "art for art's sake" or for a final product) is clear and often troublesome. Certainly, the MSS of the ancient Maya could have been produced with the process of modifying being of importance, as much as the appearance of the final product (i.e. "art" as known in the contemporary West) may have been the main concern. Despite these factors, terms such as "sculptor" have nevertheless been used in this paper to refer to *those people who modified cave formations and consequently produced the images we are studying.*